

REMARKS

This is an amendment filed in the above mentioned application in response to the Official Communication and Draftsperson's Patent Drawing Review mailed on May 24, 2005. Entry of the amendment, reexamination and allowance of the application is requested.

In response to the Examiner's communication, to clarify the definition of the subject matter sought to be patented, claims 1-8 and 10-13 are amended; claims 9 and 14 are cancelled without prejudice.

- In response to the Draftsperson's review, seven (7) new sheets of drawing figures containing revised copies of originally filed drawings 1, 3A, 4, 6, 7, 8A and 8B. The text in the figures is enlarged to be consistent with the drawing requirements indicated by the draftsperson's review. The drawings are also enlarged to be proportional to the changes in text size.
- The various issues discussed by the Examiner's DETAILED ACTION are addressed below.

1. The Abstract

The abstract is amended to be in narrative form and, as amended, is less than 150 words.

2.-3. The rejection under 35 U.S.C. 101

All claims are restated to particularly define a manufactured product (claims 1-5 and 10-13) or a method of industrial applicability (claims 6-8) for selecting the ultimate aspect ratio parameters of a micro processor heat exchanger that is manufactured.

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Thus, even though mathematical formulae are involved, the claims are directed to useful and practical apparatus and methods in which the formulae are put to efficient use in the design and fabrication of a micro component. The claims are not solely abstract definitions of mathematical operations or physical phenomena.

4., 5. and 6. The rejection under 35 U.S.C. 102, or alternatively, 35 U.S.C. 103

Rejected claims 9 and 14 are cancelled, however, their subject matter is restated and incorporated in the amended claims defining a manufactured product (claims 1-5 and 10-13) or a method of industrial applicability (claims 6-8). With reference to the Examiner's statement that Kelly *et al.*, (6,415,860) disclose a micro channel heat exchanger having a channel height of "from a few hundred micrometers to about 2000 micrometers" and a channel width of "from about 50 micrometers to a few hundred micrometers" concluding that the [Kelly *et al.*] measurement would appear to meet the [claimed structure]. The rejection misinterprets the invention. Even if a micro channel fitting the methodology of the claimed subject matter were within the general range of Kelly *et al.*, Kelly *et al.* does not disclose or suggest the *a priori* subject matter of the claims, wherein a preferred aspect ratio for set operating conditions is determined in advance of the manufacture of the micro processor. Using heights and widths disclosed in Kelly *et al.*, a wide range of aspect ratios is possible as shown in the chart below:

(Range) <u>Height</u>	(Range) <u>Width</u>	Aspect Ratio <u>(width/height)</u>
200	50	1-4
2000	200	1-10
Minimum width / Maximum height		1-40

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In designing a micro processor in advance of manufacture, the claimed invention sets out preferred aspect ratios for set operating conditions determined in advance, essentially without the need for trial and error testing as the prior art would require. See Figure 8A and Figure 8B wherein numerous possible ranges of aspect ratios for predetermined operating conditions are narrowed to the optimum by the claimed invention.

The invention eliminates time consuming, expensive trial and error testing; the claims define an *a priori* optimized micro component and a method for establishing a manufacturing design *a priori* for a micro component. To conclude that "differences in proportions would have been obvious ... as a matter of optimization of the design based on intended use" ignores the multitude of parameters from which the optimum design must be selected. See Figure 8A, Figure 8B and the chart above. The conclusion is akin to saying "There's oil in Texas." In the claimed invention, an *a priori* calculation informs the practitioner where that "oil" is, without experimentation. Even the "oil in Texas" analogy is inappropriate, however, nowhere in Kelly et al. is there any disclosure or suggestion to use the formulae of the claims in the manufacture or design of a micro channel micro processor.

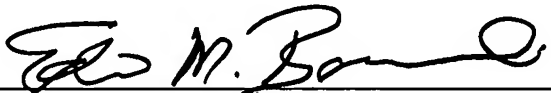
7. Other Prior Art Made of Record

The other prior art made of record and not relied upon has been considered, however, as the claimed invention is discussed above. As in distinguishing over *Kelly et al.*, above, no reference is considered pertinent to the *a priori* subject matter of applicant's invention as set out in the amended claims.

Conclusion

Corrected substitute drawings are provided; the amendment is submitted to better clarify the description of the invention. Reexamination, reconsideration and allowance is respectfully requested.

Respectfully submitted,

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CERTIFICATE OF FILING BY EXPRESS MAIL

I hereby certify that this **AMENDMENT IN RESPONSE TO THE OFFICIAL COMMUNICATION MAILED ON MAY 24, 2005** accompanied by Transmittal Form PTO/SB/21, Extension of Time Request, and a postcard receipt, is being deposited with the United States Postal Service by Express Mail Receipt No. EV491170762US in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 22, 2005.


Edwin M. Baranowski

AMENDMENT IN RESPONSE TO THE OFFICIAL COMMUNICATION MAILED ON MAY 24, 2005

Inventor FOLI, Kwasi; Serial Number 10/666,263

COLUMBUS System for Configuring the Geometric Parameters for a Micro Channel Heat Exchanger

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IV. In the Drawings

Please substitute the following attached seven (7) new sheets of drawing figures containing revised copies of originally filed drawings 1, 3A, 4, 6, 7, 8A and 8B. A statement explaining changes to the drawings is included as the first page in the following page set.